

Appln No. 09/700,572  
Amdt date May 10, 2004  
Reply to Office action of January 8, 2004

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A method for automated detection and checking of geometrical and/or textural features of an object in various views comprising side views and a plan view, using an opto-electronic image-recording device ~~as well as~~ and a storage and evaluation unit for image processing and image evaluation, wherein quality or state assessment of the object is effected by a comparison with parameters which are predetermined in respect of the individual features, wherein the method comprising:

substantially simultaneously recording a plurality of partial images of the object ~~are substantially simultaneously recorded~~ by means of a number of image-recording devices and beam-deflection means, which number is smaller than the plurality number of partial images, [[and]]

optically assembling at least a portion of the partial images ~~at least partially optically assembled~~ at the same time to form an overall image which shows all views and in which [[the]] boundaries of the partial images can be recognised, and the overall image is evaluated separately for checking [[the]] individual features in the boundaries of the partial images, ~~characterised in that~~

[[ -]] in the regions of the overall image, which show side views on to the object, ascertaining locations at which the

Appln No. 09/700,572  
Amdt date May 10, 2004  
Reply to Office action of January 8, 2004

object comes very close to a support surface ~~are ascertained~~ by analysis of [[the]] gray value distributions,

[[ - ]]] subsequently detecting the light quantity which passes through between the object and the support surface and which is reflected in [[the]] pixels as an intensity value ~~is detected~~,

[[ - ]]] determining, using the intensity values, the local light quantity pattern characterising the width of a gap between the object and the support surface ~~is determined using the intensity values,~~ and

[[ - ]]] converting the light quantity pattern ~~is converted~~ in accordance with a predetermined algorithm using calibration information into a gap width which is present between the object and the support surface.

2. (Currently Amended) A method as set forth in claim 1 ~~characterised in that all wherein the partial images are assembled optically and recorded by precisely one image-recording device.~~

3. (Currently Amended) A method as set forth in claim 1 or claim 2 ~~characterised in that wherein~~ in the overall image [[the]] regions of the partial images are [[so]] positioned and identified, using the storage and evaluation unit, so that they can be associated with [[the]] individual views.

4. (Currently Amended) A method as set forth in claim 1 ~~characterised in that wherein~~ in at least one additional step [[the]] a scene is recorded without the object and/or with a reference object which has predetermined parameters in respect

Appln No. 09/700,572  
Amdt date May 10, 2004  
Reply to Office action of January 8, 2004

of the features and the ~~corresponding~~ overall image is [[put]]  
stored in the storage and evaluation unit for comparison and  
calibration purposes.

5. (Currently Amended) A method as set forth in claim 1  
~~characterised in that~~ wherein in a region of the overall image  
comprising a plan view, by means of image processing, using  
convolution filters, areas with severe local intensity  
differences are emphasised, detected and quantified in respect  
of their dimensions.

6. (Currently Amended) A method as set forth in claim 1  
~~characterised in that~~ wherein integrated into the overall image  
is a representation of the side of the object which is remote  
from the image-recording device or devices.

7. (Currently Amended) An apparatus for automated  
detection and checking of geometrical and/or textural features  
of an object in various views comprising side views and a plan  
view, comprising:

an opto-electronic image-recording device and a storage and  
evaluation unit for image processing and image evaluation,  
~~wherein there are provided and~~

~~optical means for beam deflection, by means of which~~  
wherein a plurality of partial images of the object are  
substantially simultaneously recorded by a number of image-  
recording devices, which number is smaller than the plurality  
number of partial images, and wherein the partial images are at  
least partially assembled optically at the same time to form an

Appln No. 09/700,572  
Amdt date May 10, 2004  
Reply to Office action of January 8, 2004

overall image which shows all views and in which [[the]] boundaries of the partial images are recognisable, [[wherein]]

lens arrangement means associated with at least one of the beam-deflection means ~~are lens arrangement means~~ for changing [[the]] an imaging scale of at least one partial image with respect to at least one other partial image, and characterised in that there is provided

a flat support surface for the object, wherein [[and]] the beam-deflection means are arranged substantially in the plane of the support surface ~~in such a way that there is to provide~~ a view parallel to the support surface, ~~which permits and to permit~~ checking of [[the]] coplanarity of a plurality of parts of the object, which are towards the support surface.

8. (Currently Amended) An apparatus as set forth in claim 7 ~~characterised in that there is provided~~ comprising a single image-recording device, relative to which the object is positioned ~~in such a way that it fills to fill~~ only a partial region of [[its]] a field of view of the image-recording device which is determined by [[the]] a viewing angle, and that wherein disposed in remaining parts of the field of view are beam-deflection devices which project side views of the object on to the image-recording device.

9. (Currently Amended) An apparatus as set forth in claim 7 or claim 8 ~~characterised in that~~ wherein the beam-deflection means comprises either displaceable prisms or mirrors or prisms or mirrors comprising curved surfaces.

Appln No. 09/700,572  
Amdt date May 10, 2004  
Reply to Office action of January 8, 2004

10. (Currently Amended) An apparatus as set forth in claim 7 or claim 8 ~~characterised in that~~ wherein the beam-deflection beams have means comprise a light guide device.

11. (Canceled)

12. (Currently Amended) An apparatus as set forth in claim 7 ~~characterised by~~ comprising a lighting device comprising a light diffuser device for producing a uniform light flux under the object, which is arranged behind projecting parts of the object.

13. (Currently Amended) An apparatus as set forth in claim 12 ~~characterised in that~~ wherein the light diffuser device is interrupted ~~in such a way as~~ to permit a view on to the side of the object, which is remote from the ~~or all~~ image-recording device or devices.

14. (Currently Amended) An apparatus as set forth in claim 7 ~~characterised in that~~ wherein the image-recording device and the storage and evaluation unit are integrated to form a structural unit.

**Appln No. 09/700,572**

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**Amendments to the Drawings:**

The attached sheet of drawings includes a new sheet 5 which includes new Figure 6.

Attachment: New Sheet 5